Proposals to the IVS-DB: Development of an IVS-Field System 2010

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Introduction

The International VLBI Service (IVS) introduced in the past two working groups in order to adapt the service products and service style to the users need (WG2) and to modernize aging VLBI-equipment such as radiotelescopes, receivers, data acquisition (WG3).

One of the strong demands of the user community is the 24h/7d operation which is expressed explicitly in the VLBI2010 vision of the IVS, which is a request for the realization of the Global Geodetic Observing System (GGOS) and which is currently being realized by the twin telescope project as the first rigorous VLBI2010 radiotelescope development.

The demand for more observations from the IVS-network stations contradicts with the fixed number of station staff and little hope to improve the staff situation at the stations.

Proposal 1: Network Operations Control

Considering the demand for 24h/7d IVS-operation with dedicated IVS network stations and the limited amount of station available to control the VLBI sessions,
we propose an entire VLBI network control by one station in one of the three daylight timezones: Asia/ Australia/New Zealand (8h), Europe/Africa (8h), North- and Southamerica (8h). In this way working hours at the stations can be saved and used at weekends. The network control requires more attention than just one station, but only for a few shifts per week.

The network control of radiotelescope stations around the world using communication networks requires:
- new software for remote control of n stations,
- new software for a secure passing of the control from one station to the other,
- a system of hotline and standby staff at night zone stations in case of emergencies,
- as much as possible identical VLBI specific hardware and software for the operation at each station.

Individual IVS-network stations will transform into one global IVS-radiotelescope array with a time-shared control.

Proposal 2: IVS Field System

Considering the pre-PC-age software layout of the existing current NASA PC Field System,
considering that the current PC-FS contains still support for already retired hardware and is not easy to maintain,
considering the fact that young engineers prefer to make use of modern software architecture (client-

server based) rather than to understand fortran-code dealing with hollerith constants,
considering that maintenance of the actual PC-FS requires knowledge of the historical development and will be less and less available in the future,
considering the demand for remote control operation,
considering the demand for network control and
considering the future generation of VLBI operators and engineers,

we propose a common IVS effort to develop a new IVS-Field System based on one programming language using modern software architecture,
we propose to discuss a project on the IVS-DB in Penticton and to define it as a central theme for the upcoming IVS-TOW in 2009 in order to organize this project and to begin with the specifications,
we propose the participation of the software engineers at the radiotelescope stations to contribute to the the realization of the future VLBI2010 compliant IVS-Field System under the guidance of the IVS-network coordinator,
we propose to experience remote network control during CONT2010 and introduce it officially until 2012.